

**BEST AVAILABLE COPY**REMARKS

Claims 1-21 are pending in the application and have been examined. Claims 1-21 stand rejected. Claim 1 has been amended. New Claim 22 has been added. Reconsideration and allowance of Claims 1-22 in view of the following remarks is respectfully requested.

The Rejection of Claims 1-18 and 20-21 under 35 U.S.C. § 102(b) as being Anticipated by U.S. Patent No. 5,294,549 (Pullman et al.)

Claims 1-18 and 20-21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,294,549 (Pullman et al.). It is the Examiner's position that Pullman et al. teaches a method of cultivating somatic embryos of Douglas fir in a medium comprising gibberellin and/or abscisic acid at concentrations of 0.05 to 15 mg/L (col. 8, lines 5-6), and comprising activated charcoal (col. 9, lines 52-54). The Examiner further notes that Pullman et al. teaches a medium having an osmolality of at least 200 mM/kg (col. 7, lines 59-61), and the use of activated charcoal at a concentration of 2.5g/L (Table 2). The Examiner then concludes that from 50% to 75% of the embryos produced using methods taught by Pullman et al. are inherently at the same developmental stage, absent evidence to the contrary.

Claim 1 has been amended to clarify that the method comprises the step of cultivating pre-cotyledonary conifer embryogenic cells in, or on, a synchronization medium. Support for this claim amendment can be found in the specification at page 3, lines 29-30; page 4, lines 13-17; page 7, lines 1-13; and page 18, line 1 to page 19, line 31. It is submitted that the claim amendment places independent Claim 1, from which Claims 2-21 depend, in condition for allowance for the following reasons.

It is submitted that the Pullman et al. reference does not teach or suggest the cultivation of *pre-cotyledonary* embryos in a medium comprising *an absorbent composition in combination with gibberelin and/or abscisic acid*. The Pullman et al. reference describes the different stages of conifer embryogenesis as induction (first culture), maintenance, singulation, development, and germination. See Pullman et al., TABLE 2. As described in Pullman et al., "proembryos"

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present at the maintenance and singulation stage are converted to "cotyledonary embryos" at the development stage. See Pullman et al., col. 7, line 29 to col. 8, line 63. As described in the specification of the instant application, the stages of conifer embryogenesis include induction, maintenance, development, stratification, and germination. See specification, page 15. As described in the instant specification, "pre-cotyledonary embryos" are present at the maintenance stage, which are converted to "cotyledonary embryos" at the development stage. See page 7, lines 10-14. Therefore, the term "pre-cotyledonary embryos" in the instant application and "proembryos" in Pullman et al. both refer to the state of the embryonic cells prior to the development stage.

The claimed invention, as amended, is directed to the cultivation of pre-cotyledonary embryos. As described in the instant specification, the pre-cotyledonary embryos are cultivated in synchronization medium after the maintenance stage and prior to the development stage. See, e.g., specification at page 9, line 21-page 10, line 11. As described on page 9, line 30 to page 10, line 4:

In some embodiments of the invention, an absorbent composition and at least one synchronization agent may be added directly to the maintenance medium that includes one or more growth-promoting hormones. The absorbent composition(s) bind growth-promoting hormones present in the medium so that the rate of multiplication of the embryogenic cells is reduced, or multiplication is stopped entirely, and the gibberellin(s) and abscisic acid promote production of a synchronized population of conifer somatic embryos.

In contrast, Pullman et al., teaches the culture of proembryos in a maintenance medium in which "no hormone absorbent is usually necessary or desirable at this time." Col. 7, lines 43-46. Moreover, applicants wish to point out that the passage cited by the Examiner as describing the use of activated charcoal (col. 9, lines 52-54), refers to an adsorbent used with exogenous abscisic acid "in the development from proembryos to cotyledonary embryos." Col. 9, lines 49-52. As further shown in TABLE 2 of Pullman et al., none of the pre-development stage media

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listed (e.g., Initiation, Maintenance 1, Maintenance 2 or Singulation) contain an absorbent and at least one synchronization agent selected from the group consisting of abscisic acid and gibberellin, as required by Claim 1.

Therefore, the Pullman et al. reference does not teach or suggest the cultivation of pre-cotyledonary conifer embryogenic cells in, or on, a synchronization medium that comprises an absorbent composition, and at least one synchronization agent, as now claimed. Accordingly, it is submitted that the Pullman et al. reference fails to disclose or suggest all the elements of the claimed invention, and the invention of Claim 1 as amended, is not anticipated by or obvious to a person of ordinary skill in the art in view of this reference. Applicants therefore request removal of this ground of rejection.

The Rejection of Claim 19 Under 35 U.S.C. § 103(a) as Being Unpatentable Over U.S. Patent No. 5,294,549 (Pullman et al.)

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,294,549 (Pullman et al.). Claim 19 depends from Claim 1, which has been amended as described above.

It is submitted that the Examiner has failed to establish a *prima facie* case of obviousness because the cited reference fails to disclose or suggest all the claim elements of the claimed invention. For the reasons described above, amended Claim 1 is neither anticipated by nor obvious over the Pullman et al. reference. The Examiner acknowledges that Pullman et al. does not disclose a method of cultivating Loblolly pine. Nevertheless, the Examiner concludes it would have been obvious to adjust the culture media depending on the particular species based on the teaching in Pullman et al. at col. 23, lines 3-10, which states:

Adjustments in the mineral and plant hormone constituents of the culture media must frequently be made depending on the particular species and genotype being cultured. This applies to each of the various stages of culturing from explants to plantlets. These

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adjustments are considered to be within the routine experimental capacity of those skilled in the art of tissue culture.

As described above, the Pullman et al. reference fails to disclose or suggest a method of producing a synchronized population of conifer somatic embryos comprising the step of cultivating pre-cotyledonary conifer embryogenic cells in, or on a synchronization medium that comprises an absorbent composition and at least one synchronization agent selected from the group consisting of abscisic acid and gibberellin, as required by Claim 1. Claim 19 depends from Claim 1 and further defines the method of the invention. As described above, the applicants believe Claim 1, as amended, is allowable over Pullman et al. Moreover, as acknowledged by the Examiner, Pullman et al. fails to teach the production of Loblolly pine embryos as required by Claim 19. Therefore, the cited reference fails to teach or suggest all the elements of the method for producing a synchronized population of conifer somatic embryos, as claimed. Removal of this ground of rejection is respectfully requested.

### The Obviousness-Type Double Patenting Rejection

The Examiner has provisionally rejected Claims 1, 8 and 9 over Claims 17, 18, 19, 20 and 21 of copending Application No. 10/405,819. Applicants will submit a terminal disclaimer over co-pending Application No. 10/405,819, upon a finding of an allowable claim.

### New Claim 22

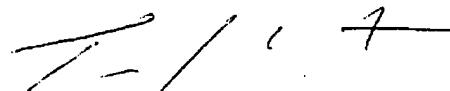
New dependent Claim 22 has been added that depends from Claim 1. Support for Claim 22 is found throughout the specification, e.g., at page 7, lines 10-18.

**BEST AVAILABLE COPY**CONCLUSION

In view of the foregoing remarks, applicants respectfully submit that all the pending claims are in condition for allowance. If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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